

# Xinyi YE

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## EDUCATION

### The Chinese University of Hong Kong, Shenzhen (CUHK-SZ)

*Bachelor of Science in Mathematics and Applied Mathematics (Applied Mathematics Stream)*

Shenzhen, China

Aug 2018 - Present

**cGPA:** 3.770/4.0, **mGPA:** 3.871/4.0; **Ranking:** x/xx

**Core Courses:** Calculus, Advanced Linear Algebra (Julia), Abstract Algebra, Probability and Statistics (R), Elementary Real Analysis, Optimization (MATLAB), Ordinary Differential Equations, Partial Differential Equation, Complex Variables, Discrete Mathematics, Introduction to Computer Science: Programming Methodology (Python), Introduction to Computer Science: Programming Paradigms (C++), Data Structures (C++), Fundamental of Machine Learning (Python)

**Awards:** Dean's List, School of Science and Engineering, 2018-19, 2019-20; Academic Scholarship, Shaw College, 2018-19, 2019-20; Second-Class Scholarship, School of Science and Engineering, 2018-19

## PROFESSIONAL EXPERIENCES

### Company Name

City, China

*Title, Division*

StartTime - EndTime

- To be added

## RESEARCH EXPERIENCES

### Data Analysis of Smart Health Care Management System, Advisor: Prof. **Xinyun** CHEN, Prof. Pengyi SHI Jan 2021 - Present

- Simulated the queues for outpatient services based on the queuing theory and data (arrival patterns of patients and inquiry processes of doctors) from Shenzhen Luohu Hospital with Discrete-Time Markov Chains (DTMC) and Continuous-Time Markov Chains (CTMC), designed **a function with XX** queuing policies to optimize the allocation of medical resources, satisfying patients' needs while avoiding doctors working overtime

### Continuous-Time Markov Chains (CTMC), Advisor: Prof. Zhuoxuan CAI

Jul 2020 - Oct 2020

- Completed literature review centered around CTMC, implemented the algorithms mentioned in the papers as well as the **XX** method proposed by the project, subjects including simulated annealing, momentum method, and Langevin diffusion
- Developed the codes with pair programming, used Python to demonstrate how different algorithms approach their extreme points, and compared the strengths and weaknesses of the algorithms

## COURSEWORK

### CSC4020 Fundamental of Machine Learning

Shenzhen, China

**Individual Project** | *Handwritten Digits Recognition*

Apr 2021

- Used forward propagation and backward propagation to build a fully-connected feed forward neural network (FFNN), and trained it with different hyperparameters; draw diagrams to analyze and select a learning rate
- Analyzed the influence of different number of hidden nodes on the accuracy of the model, underfitting, and overfitting

**Individual Project** | *Phishing Email Screening*

Mar 2021

- Built, trained, and tested a logistic regression model and ridge regression model, drew diagrams to analyze the effects of different learning rates, how accuracy was increased through training, and the effects of different L2 penalties
- Extracted 57 characteristics of the Emails, and conducted multivariate correlation analysis to delimit how the characteristics affected screening accuracy

### CSC3100 Data Structures

Shenzhen, China

*Individual Projects* | *C++ Coding Practices*

Dec 2020

- Implemented Dijkstra's algorithm and Huffman Coding

### MAT3007 Optimization

Shenzhen, China

*Group Project, Team Leader* | *Image Restoration and Mosaic Model Creation*

Jul 2020

- Built image restoration and Mosaic creation model with discrete optimization methods in MATLAB, tested and compared the number of loops and run time required for the original question and the dual problem thereof

### CSC1002 Computational Laboratory

Shenzhen, China

*Individual Projects* | *Python Coding Practices*

Mar 2019 - May 2019

- Built a KNN model with cross validation, and achieved 97% accuracy of recognizing handwritten digits
- Created with SQL and Bokeh of Python a Web application to search course information
- Implemented the classic Klotski game (a sliding block puzzle)

## EXTRACURRICULAR ACTIVITIES

### Graduate School, CUHK-SZ

Shenzhen, China

**Assistant (Student Affairs)**

Mar 2020 - May 2020

- Verified and organized student data, archived student profiles, and helped issue final transcripts and graduation documents for graduates

### **Stay-at-home Spoken English Development Plan, CUHK-SZ**

Shenzhen, China

*Undergraduate Mentor (Online)*

Mar 2020 - May 2020

- Hosted 2 to 3 sessions with three seniors in high school to practice English each week, and promoted the university and the discipline of applied mathematics in English (one mentee determined to apply for my program at CUHK-SZ)

### **Booktopia, CUHK-SZ**

Shenzhen, China

*Minister, Event Planning Department*

Sep 2019 - Oct 2020

- Designed and orchestrated major Booktopia events, tasks including agenda and objective setting, material procurement, venue booking and decoration, and event promotion through social media like WeChat and Weibo
- Hosted feature events like Make Your Own Thread-Bound Book (Mar 2020), Horror Movie Month (Nov 2019), and An Exhibition of Existentialism (Oct 2019)

## **SKILLS AND PROFICIENCIES**

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### **Programming:**

Python, R, C++, MATLAB, Julia

### **Languages:**

English (*Proficient*, TOEFL 99, GRE **X+X+AW X**), Mandarin (*Native*)

### **Interests:**

Abstract math, modeling